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Predictive factors of positive online patient ratings of spine surgeons

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Abstract

BACKGROUND: Online physician rating websites are increasingly used by patients to evaluate their doctors. The purpose of this investigation was to evaluate factors associated with better spine surgeon ratings.

METHODS: Orthopedic spine surgeons were randomly selected from the North American Spine Society directory utilizing a random number generator. Surgeon profiles on three physician rating websites, namely, www.HealthGrades.com, www.Vitals.com, and www.RateMDs.com, were analyzed to gather qualitative and quantitative data on patients' perceptions of the surgeons. Independent variables from the websites were analyzed in relation to overall physician or patient satisfaction rating. Comments were coded by subject into following three categories: professional competence, bedside manner, and practice characteristics.

RESULTS: A total of 250 surgeons were evaluated, and 92% (n=230) of these doctors had at least one rating among the three websites. The surgeons with a higher average rating had significantly better trust ($p<.01$), scheduling ($p<.01$), staff ($p<.01$), helpfulness ($p<.01$), and punctuality ($p<.01$) scores but significantly less experience ($p<.05$). A linear regression model for the average rating of each surgeon (R^2 value=0.754) yielded only following three significant variables: trustworthiness ($p<.01$), experience match ($p<.05$), and the average number of negative comments on surgeon's professional competence ($p<.05$). Trustworthiness ($\beta=0.749$) was the strongest predictor variable of physician rating, followed by the number of negative professional competence comments ($\beta=-0.132$) and experience match ($\beta=-0.112$).

CONCLUSIONS: This investigation assessed spine surgeon online patient ratings and categorized factors that patients associate with quality care. Trustworthiness was the most significant predictor of positive ratings, whereas ease of scheduling, quality of staff, helpfulness, and punctuality were also associated with higher patient ratings. Understanding what patients value may help optimize care of spine surgery patients. © 2018 Elsevier Inc. All rights reserved.

Introduction

Patients are increasingly going online to search for health-related topics like disease or physician information, with 80% of users utilizing the Internet for this task [1]. Online physician ratings websites have become especially popular ways of evaluating physicians. These publicly accessible websites contain profiles of doctors and scores

on multiple categories ranging from timeliness to ability to communicate. Patients are able to both give feedback on their own physicians and review previous ratings left by others. One such online rating site, namely, www.Health Grades.com, had 20.2 million unique users in the month of January 2017 alone [2]. Of those patients that had used ratings websites, 72% reported either choosing or not choosing particular physicians due to positive or negative reviews [3].

Given the pervasiveness of the Internet, and in particular online physician ratings websites in informing physician selection, it is important for health-care professionals to understand how these ratings websites work and, more importantly, what factors affect ratings. The objective of this study was to identify the factors associated with positive rating for orthopedic spine surgeons on online ratings websites. Our hypothesis was that surgeons with greater experience and number of reviews would have better ratings. It was also hypothesized that comments on surgeon competence would have the greatest impact on rating scores.

Materials and methods

From the North American Spine Society directory, 250 orthopedic spine surgeons were randomly selected through random number generation in Microsoft Excel (Microsoft Corporation, Redmond, WA). Using three popular physicians' ratings websites, such as www.HealthGrades.com, www.Vitals.com, and www.RateMDs.com, each surgeon was queried [4]. Quantitative and qualitative data, including patient-rated physician scores and comments, were subsequently gathered from each surgeon's profile on these three websites between July 2016 and November 2016 (see Table 2 for a complete list of variables). As described by Trehan et al., patient comments were coded into following four categories: (1) relating to clinical outcome or surgeon's professional skills, (2) relating to surgeon's availability, communication skills, or bedside manner, (3) related to practice characteristics not connected to the surgeon, such as staff competence, and (4) two or more above-mentioned categories equally or unrelated to other categories [5]. Each comment in these categories was then classified as positive, negative, or neutral by the same investigator.

Data analysis was completed using SPSS Version 24 (IBM Corporation, Armonk, NY). The objective of this analysis was to examine the factors that were associated with overall physician or patient satisfaction rating. Independent samples t-tests compared surgeons with an average rating in the top quartile to those with an average rating in the bottom quartile, with respect to variables collected from the websites. The relevant independent variables that were significant in the t-tests were then used to construct a regression model that isolated the factors that have the most influence on average physician rating. Variables that

were closely dependent on other variables were removed as described in previous literature on regression methods [6].

Results

Of the 2717 orthopedic spine surgeons listed in the North American Spine Society database, 250 randomly selected individuals were successfully evaluated.

Descriptive statistics

Of the 250 doctors, 230 (92%) had at least one rating among the three websites. The site www.Vitals.com had the most doctors with ratings (n=227), the highest average number of ratings per doctor (23.092), and the highest average rating per doctor (3.938), followed by www.Health Grades.com and www.RateMDs.com. Across all three websites, physicians had an average of 9.40 comments (see Table 1). The majority of the comments in each category were positive, except for comments on nonphysician practice characteristics; 86.3% of the comments discussing topics such as staff competence were negative.

Variations between surgeons with average ratings in the top versus bottom quartiles

The surgeons with a higher average rating had significantly ($p < .05$) lower experience match scores and years of experience but significantly better trustworthiness, scheduling, staff, helpfulness, and punctuality scores (see Table 2). The factors that were not significantly different, contrary to our hypothesis, were average number of ratings (p=.985), online presence (p=.965), rank (p=.380), and Castle

Table 1
Overall demographic information

	Mean	Standard deviation
Avg. rating	3.844	0.764
www.Healt.com	3.870	0.821
www.Vitals.com	3.938	0.722
www.RateMDs.com	3.634	1.165
Avg. no. of ratings	14.276	15.333
www.HealthGrades.com	15.316	17.065
www.Vitals.com	23.092	26.066
www.RateMDs.com	4.420	8.122
Avg. no. of comments by category		
A − Professional competence	1.041	1.584
Positive	0.789	1.406
Negative	0.251	0.499
B − Communication skills	1.087	1.668
Positive	0.712	1.445
Negative	0.373	0.642
C − Staff/practice	0.111	0.270
Positive	0.015	0.080
Negative	0.096	0.241
D − More than one of the above	0.893	1.581
Positive	0.675	1.458
Negative	0.174	0.342

Table 2

Variable differences between surgeons with ratings in the upper and lower quartiles

	Difference*	t	Significance
Avg. rating no.	−0.060	0.019	.985
Trustworthiness	1.553	−16.196	<.001
Scheduling	1.111	−8.908	<.001
Years of experience	−6.216	2.621	.010
Experience match	−4.144	2.939	.004
Online presence	−0.009	0.044	.965
Staff	0.651	−3.485	.001
Helpfulness	0.845	−4.624	<.001
Punctuality	0.983	−5.384	<.001
Rank	−0.052	0.883	.380
Castle Connolly status	0.091	−1.640	.104
Avg. no. of comments by category			
A − Professional competence	0.077	−0.192	.848
Positive	0.542	−1.516	.137
Negative	−0.465	3.847	<.001
B − Communication skills	0.092	−0.193	.848
Positive	0.719	−1.657	.106
Negative	−0.627	4.258	<.001
C − Staff/practice	−0.011	0.262	.794
Positive	0.010	−1.000	.324
Negative	−0.020	0.493	.624
D − More than one of the above	0.320	−0.674	.504
Positive	0.631	−1.399	.170
Negative	−0.287	3.730	.001

* Raw difference between those in the top quartile and those in the bottom quartile of avg. rating.

Connolly status (p=.104). Though the two groups did not have a significantly different (p>.05) number of comments overall, the higher ratings group had significantly (p<.01) lower numbers of negative comments describing surgeon characteristics (professional competence, communication skills, and others).

Factors influencing average online rating

A linear regression was run on the average rating of each surgeon with the significant variables from the independent-samples t-tests (see Table 3). Years of experience was excluded from the regression as it was closely related to the experience match variable. The overall model had an R^2 value of 0.754 and contained three significant variables. Trustworthiness had a standardized βcoefficient value of 0.749, making it the most important predictor variable of physician rating and indicating that a higher trust score was associated with a higher rating. Fewer negative comments on professional competence and a lower experience match score were also significantly associated with a higher rating.

Discussion

This study sought to identify factors associated with positive reviews for orthopedic spine surgeons on online

Table 3

Regression analysis of variables' impact on surgeon rating

	Standardized β	t	Significance
Trustworthiness	0.749	8.650	<0.001
Scheduling	0.005	0.067	0.947
Experience match	−0.112	−2.282	0.024
Staff	0.039	0.329	0.743
Helpfulness	−0.042	−0.324	0.747
Punctuality	0.097	1.726	0.087
A − Professional competence			
Negative	−0.132	−2.426	0.017
B − Communication skills			
Negative	−0.002	−0.027	0.979
D − More than one of the above			
Negative	−0.109	−1.711	0.090

ratings websites by analyzing the ratings of 250 randomly selected spine surgeons. Nearly all surgeons had profiles and at least one rating, with www.Vitals.com containing the most ratings. This is consistent with other recent investigations focusing on surgeons that have found that more than 90% of the sampled doctors had at least one rating [7]. The popularity of physician rating websites can be linked to the increasing value being placed on patient satisfaction and quality of care in the US health-care system and American surgery [8]. Patients are demanding more in the quality of care they receive and taking advantage of the choices they have in choosing health-care providers [9]. Given the importance of patient satisfaction in the era of quality-centered and consumer-driven health care, online ratings websites can supply valuable information for physicians.

More than any other factor, the trustworthiness metric was the best predictor of surgeon rating. It would appear that the more the patients trust their orthopedic spinal surgeons, the better they rate them online. Taking the t-tests and regression together, although many of the scores do have some effect on overall patient satisfaction and surgeon rating, it is the trustworthiness score that has the most influence on patient satisfaction with their care. Further, patients tended to rate doctors with lower experience match scores, which signify smaller patient loads and fewer procedures performed better. Surgeons in the highest quartile of ratings had on average 6.2 years less experience than those in the bottom quartile.

It is noteworthy that trustworthiness but not professional experience was positively associated with average rating. Trust, an especially critical component of the physician-patient relationship, can be defined as a patient's expectations and confidence in a physician's intent and actions [10]. An analysis of patients' trust in their doctors found that patients most often identified physician's interpersonal characteristics as associated with trust, such as communication and compassion. Professional competence and

experience were the next most commonly mentioned category [11]. Therefore, although professional experience does affect trustworthiness, patients' perception of trust is also influenced by other social cues that seem to largely influence patient satisfaction.

Though the least number of comments focused on staff and practice characteristics, nearly all of the comments were negative, suggesting that particularly negative experiences with staff can influence satisfaction. The largest number described physician's bedside manner, followed by surgeon's professional competence, and patients overall focused most on subjective qualities like communication skills when evaluating their physicians. However, only negative comments on professional competence were a significant predictor of ratings. Therefore, even though more patients focused on physician's bedside manner, it was their thoughts on surgeon's professional competence that were most associated with satisfaction.

This study had several potential limitations. First, there was a large variability in the number of ratings between surgeons (SD=15.333), and some surgeons in the analysis had a few reviews on which their scores were computed, which could bias the results. Additionally, as most of the ratings were positive, this skewness in the average rating dependent variable could have lowered the accuracy of the regression analysis. Last, the subset of people that rate physicians online is likely different than the overall patient population, with previous studies finding that the patients were younger and more educated [12]. This potential distortion of the patient population should be recognized when interpreting the results of the study.

In summary, most orthopedic spinal surgeons have at least one patient rating online, with mostly positive ratings. The level of trustworthiness exhibited by the physician is the biggest predictor of overall rating and patient satisfaction. Lower surgeon experience match scores were also associated with better ratings. Though more comments focused on physician's bedside manner, it was the comments on professional competence that most influenced ratings. Future studies should evaluate how factors such as socioeconomic class of the hospital region, board certification status, and outcome variables including mortality and morbidity rates correspond to average online rating of orthopedic spinal surgeons.

Acknowledgment

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